

effective impurity of the laboratory air. Acetylene in sufficient concentration has the same effect. In these impurities the seedling loses its negative geotropism and becomes transversely geotropic or diageotropic. All his conclusions, with much more data for substantiation than NELJUBOW has, were reported by KNIGHT and his co-workers at the Boston meeting of the A.A.A.S. in 1910. Extracts of this report appear in *Science*³⁰ and in the *Experiment Station Record*.³¹—WILLIAM CROCKER.

Height of the Douglas fir.—Inquiring into the cause of the great height of the Douglas fir, FRYE³² finds that unusual size is a characteristic of many of its neighbors, and cites as an example the common brake, which in this region attains a height of 14 feet. This among other things leads to the supposition that the cause of such giants of vegetation is to be sought in the climate, and hence to the conclusion that the fir is tall because it grows in a damp climate and in conditions of partial darkness due to overcrowding and to the large number of dark days during its elongating season.—GEO. D. FULLER.

The chromosomes of Ginkgo.—Conflicting accounts by CARDIFF, CAROTHERS, and SPRECHER regarding the number of chromosomes in *Ginkgo biloba* led ISHIKAWA³³ to examine the readily accessible Japanese material. He found 12 bivalent chromosomes in the pollen mother cell, the number reported by CARDIFF. One of the 12 is constantly larger than the other 11, a fact recorded in the figure but not in the text of both CARDIFF and CAROTHERS. While the paper is short, the evidence that 12 is the gametophytic number of chromosomes in *Ginkgo* is conclusive.—CHARLES J. CHAMBERLAIN.

The embryo sac of Pandanus.—From material of *Pandanus coronatus* collected in Java, CAMPBELL³⁴ finds that the embryo sac has a nearly normal egg apparatus, an endosperm nucleus formed by the fusion of two or more nuclei, and a considerable mass of antipodals, resembling the antipodal situation in *Sparganium*, except that in *Sparganium* most of the antipodals are formed after fertilization. CAMPBELL had already noted as many as 14 nuclei in the embryo sac of *Pandanus* before fertilization.—CHARLES J. CHAMBERLAIN.

³⁰ KNIGHT, LEE I., ROSE, R. CATLIN, and CROCKER, WILLIAM, Effect of various gases and vapors upon etiolated seedlings of the sweet pea; a new method of detecting traces of illuminating gas. *Science N.S.* 31:635, 636. 1910.

³¹ Exp. Sta. Rec. 23:229, 230. 1910.

³² FRYE, T. C., Height and dominance of the Douglas fir. *Forestry Quart.* 8:468-470. 1910.

³³ ISHIKAWA, M., Ueber die Zahl der Chromosomen von *Ginkgo biloba* L. *Bot. Mag. Tokyo* 24:225, 226. *figs.* 3. 1910.

³⁴ CAMPBELL, D. H., The embryo sac of *Pandanus coronatus*. *Bull. Torr. Bot. Club* 38:293-295. 1910.